Cyberbullying victimization and symptoms of depression and anxiety among Chinese adolescents: Examining hopelessness as a mediator and self-compassion as a moderator

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Abstract

Cyberbullying victimization has been identified as a significant vulnerability factor in the development of adolescents’ depression and anxiety. However, little is known about the underlying processes that may mediate or moderate these relationships. The present study examined hopelessness as a mediator and self-compassion as a moderator in the relations between cyberbullying victimization and symptoms of depression and anxiety. The sample consisted of 489 Chinese early adolescents aged from 11 to 15 years ($M = 12.67$, $SD = .75$; 43.6% girls) who completed measures of cyberbullying victimization, hopelessness, self-compassion, depression, and anxiety. Bias-corrected bootstrap method was employed to test the proposed moderated mediation models. Results indicated that after controlling for participants’ gender and age, hopelessness partially mediated the relationships between cyberbullying victimization and depression as well as anxiety. The direct effects of cyberbullying victimization on depression and anxiety, and the mediation effects of hopelessness were moderated by self-compassion. Specifically, these effects were much stronger for adolescents with lower self-compassion. The present study can extend our knowledge about how, when, and when of how cyberbullying victimization is related to depression and anxiety. Limitations and practical implications of this study are further discussed.

Keywords

Cyberbullying victimization; hopelessness; self-compassion; depression; anxiety; adolescents
1. Introduction

In this digital age, cyberbullying has gradually become a serious social problem all over the world, especially among adolescents. It is typically defined as “any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others” (Tokunaga, 2010, p. 278). For example, people can slander, threaten, or insult others in an electronic context (e.g., e-mails, instant messages, and social networking sites). Nowadays, cyberbullying has gained increased attention from educators, parents, researchers, and the general public due to its serious impacts on the victims, including depression, anxiety, low self-esteem, loneliness, and even suicidal ideation (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Among these negative outcomes of cyberbullying victimization, depression and anxiety have been targeted for particular focus.

Depression and anxiety are two common comorbid mental health problems during adolescence (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Depressive symptoms involve “sad, empty or irritable mood along with cognitive and somatic alterations which impact the individual’s functioning” (Schäfer, Naumann, Holmes, Tuschen-Cafler, & Samson, 2017, p. 261). Anxiety symptoms refer to “excessive anxiety-related emotional and behavioral responses (e.g., avoidance) and related cognitive patterns” (Schäfer et al., 2017, p. 262). Depressive and anxiety symptoms can cause adolescents substantial functional impairment and future mental health disorders (Kendall et al., 2010; Weissman et al., 1999). A large amount of cross-sectional and longitudinal research demonstrated that cyberbullying victimization was significantly associated with depression (e.g., Cole et al., 2016; Landoll, La Greca, Lai, Chan, & Herve, 2015; Wright, 2015) and anxiety (e.g., Fredstrom, Adams, & Gilman, 2011; Wright, 2015). These relations may be explained by some
unique features of cyberbullying including anonymity of the perpetrators, accessibility of the victims, greater potential audience, and relative permanence of cyberbullying incident (Kowalski et al., 2014; Von Marées & Petermann, 2012). One obvious limitation of previous studies is a lack of attention to the mechanisms linking cyberbullying victimization to depressive and anxiety symptoms. Identifying mechanisms through which cyberbullying victimization is related to internalizing symptoms has significant implications for the development of interventions aimed at reducing the negative impacts of cyberbullying victimization. The present study aims to fill in this gap.

1.1. Hopelessness as a mediator

One potential mechanism linking cyberbullying victimization to depression and anxiety is hopelessness, which consists of two components: (a) an expectation that negative outcomes will occur in the future, and (b) a belief that there is nothing one can do to affect these outcomes (Abramson, Metalsky, & Alloy, 1989). Based on the hopelessness theory of depression (Abramson et al., 1989), hopelessness is a proximal sufficient cause of depression. Empirical research has indicated that hopelessness is associated with depressive disorders (Wang, Jiang, Cheung, Sun, & Chan, 2015; Young et al., 1996), and prospectively predicts increases in depressive symptoms (Alloy et al., 2012; Hamilton et al., 2013). Although hopelessness primarily has been considered specific to the development of depression (Alloy et al., 2012; Hankin, Abramson, Miller, & Haeffel, 2004), some evidence suggests that hopelessness may also be associated with anxiety (Alloy, Kelly, Mineka, & Clements, 1990; Marai, 2004; Miranda, Fontes, & Marroquin, 2008). From the helplessness-hopelessness perspective of depression and anxiety (Alloy et al., 1990; Chorpita &
Barlow, 1998), depression emerges from hopelessness, whereas anxiety arises only from the certainty about one’s helplessness (one component of hopelessness). Inconsistent with this theory, however, Miranda et al. (2008) found that anxiety was also associated with the other component of hopelessness, the belief in the occurrence of negative future outcomes. This suggests that anxiety may be related to both components of hopelessness.

Negative life events have long been theorized to contribute to hopelessness among youth (Rose & Abramson, 1992). Cyberbullying victimization is a kind of stressor in adolescents’ daily life, and its relationship with hopelessness can be explained by some essential features of this phenomenon. Specifically, it difficult for victims to determine the perpetrators’ identity, as these people often remain anonymous online (Patchin & Hinduja, 2006). Victims can be sent threatening messages or hurtful comments through their mobiles or computers anywhere and at any time, which may lead to the difficulty or inability for them to escape from cyberbullying (Slonje, Smith, & Frisén, 2013). Furthermore, cyberbullying incidents can potentially be witnessed by a large, mostly unknown, limitless audience, and theoretically remain in cyberspace permanently (Von Marées & Petermann, 2012). Due to the aforementioned features of cyberbullying, this repeated, on-going, and uncontrollable act may result in victims’ three kinds of inferences: attributing cyberbullying victimization to stable and global causes; believing that the negative consequences of the act are irremediable, unchangeable, and affect many areas of life; and viewing themselves as worthless and inferior. These inferences would further contribute to the development of hopelessness (Abramson et al., 1989).

Rose and Abramson’s (1992) developmental extension of the hopelessness theory was adopted as a conceptual framework to integrate the relationships among cyberbullying victimization,
hopelessness, depression, and anxiety as a whole. Based on this conceptual model, stressors, particularly when chronic and uncontrollable (e.g., cyberbullying victimization), contributes to the development of hopelessness, which in turn leads to internalizing symptoms (e.g., depression and anxiety). Specifically, individuals initially make hopefulness-oriented attributions (e.g., “Those who bullied me online were just in a bad mood that day”) following the occurrence of negative events, but with repeated occurrences the attributions will become more hopelessness-oriented (e.g., “I am worthless”). Over time, individuals may consequently develop negative attributional styles, which contribute to greater hopelessness, and in turn develop depressive or anxiety symptoms. Further, Rose and Abramson propose that events threatening individuals’ self-worth or directly providing negative attributions for them, such as bullying victimization, would be more likely to contribute to the development of hopelessness.

Supporting this theory, some studies have demonstrated that hopelessness mediates the relationship between interpersonal stressors and internalizing symptoms (Courtney, Johnson, & Alloy, 2008; Hamilton et al., 2013). For example, Hamilton and colleagues found that hopelessness mediated the relationships between emotional abuse and symptoms of depression and social anxiety among adolescents. Although both cross-sectional and prospective associations between victimization and hopelessness have been revealed among adolescents (Hamilton et al., 2015; Siyahhan, Aricak, & Cayirdag-Acar, 2012), no research, to date, examines the relationship between cyberbullying victimization and hopelessness, as well as the mediating role of hopelessness linking cyberbullying victimization to depression and anxiety. Based on theoretical and empirical analyses, the present study hypothesized that cyberbullying victimization would be associated with higher levels of hopelessness, which in turn would be associated with higher risk for depression and anxiety.
1.2. Self-compassion as a moderator

The organism-environment interaction model (Lerner, Lerner, Almerigi, & Theokas, 2006) posits that not all individuals are equally influenced by the same environment, and that the dynamics of individual and context interactions contribute to the person’s psychological and social adaptation. To our knowledge, however, no research to date has examined the potential moderators that may buffer the adverse effects of cyberbullying victimization. Examining the protective effects of certain variables might help to formulate specific interventions aimed at alleviating victims’ psychosocial adjustment difficulties. The present study investigated self-compassion as such a moderator in the relations between cyberbullying victimization and its unfavorable outcomes, including depression, anxiety, and hopelessness.

Self-compassion, a construct from Buddhist thought, has aroused the interest of western researchers. According to the definition proposed by Neff (2003a; 2003b), self-compassion entails three interrelated components: self-kindness, common humanity, and mindfulness. Specifically, self-kindness refers to the tendency to be kind and understanding toward oneself when confronting personal pain and failure. Common humanity is concerned with the inclination to perceive one’s own suffering as part of the larger human experience. Mindfulness involves holding painful thoughts and feelings in balanced awareness. As a healthy stance toward oneself without involving evaluations of self-worth, self-compassion can be a powerful protective factor of mental health (Neff, 2003a, 2003b). It is often positively associated with indicators of psychological well-being (e.g., life satisfaction, happiness, optimism, positive affect, emotional intelligence, and social connectedness), and negatively associated with depression, anxiety, stress, anger, self-criticism, rumination and thought suppression (MacBeth & Gumley, 2012; Neff, 2003b; Neff & Vonk, 2009).
In addition to these results, self-compassion can be an important construct that facilitates resilience and coping (Leary, Tate, Adams, Allen, & Hancock, 2007). People with high self-compassion tend to use adaptive strategies to cope with stressful events, such as relying heavily on positive cognitive restructuring and less on avoidance and escape (Allen & Leary, 2010). Neff (2003b) also views self-compassion as a useful emotional regulation strategy, in which painful or distressing feelings are not avoided but are held in awareness with kindness, understanding, and a sense of shared humanity (Neff, 2003b). That is, self-compassion transforms negative emotions resulting from experiences of pain and failure into a more positive feeling state. In this sense, self-compassion may attenuate people’s negative reactions to stressful life events (e.g., cyberbullying victimization).

A growing body of research has demonstrated that self-compassion moderates the associations between stressors and negative mental health outcomes (Jiang et al., 2016; Keng & Liew, 2017; Kyeong, 2013; Leary et al., 2007; Neff, Hsieh, & Dejitterat, 2005). For example, Leary et al. (2007) found that self-compassion buffered people against negative self-feelings when imagining distressing social events, and moderated negative emotions after receiving ambivalent feedback, particularly for those with low self-esteem. Jiang et al. (2016) found that the association between peer victimization and adolescent non-suicidal self-injury was weakened under the condition of high levels of self-compassion. Kyeong’s (2013) study showed that self-compassion moderated the relationships between academic burn-out and psychological well-being as well as depression. Taken together, we speculated that self-compassion may buffer the relations between cyberbullying victimization and its negative outcomes (i.e., depression, anxiety, and hopelessness).

Overall, it was reasonable for this study to include both hopelessness and self-compassion in
the same conceptual models (see Fig. 1). According to Brown and Harris’s (1978) psychosocial model of depression, the impact of negative events (e.g., cyberbullying victimization) is moderated by self-esteem and mediated by hopelessness. Further, this theory can be viewed as including diathesis-stress and mediation components (i.e., low self-esteem is the diathesis and hopelessness is the mediator). The above hypotheses raised by Brown and Harris (1978) have been demonstrated in previous research (Abela, 2002; Metalsky, Joiner, Hardin, & Abramson, 1993; Whisman & Kwon, 1993). The present study examined self-compassion, rather than self-esteem, as a potential buffer against the detrimental effects of life stress for certain reasons. Self-compassion may entail many of the psychological benefits that have been associated with self-esteem, but with fewer of its pitfalls. These two constructs share a positive self-view, however, self-compassion focuses on the feelings of compassion toward oneself and the recognition of one’s common humanity rather than makes (positive or negative) self-judgments (Neff, 2003a). Thus, it actually counters the tendencies toward narcissism and self-centeredness that may stem from attempts to maintain high self-esteem (Baumeister, Smart, & Boden, 1996; Neff & Vonk, 2009). In addition, given that self-compassion does not require individuals to adopt an unrealistic view of themselves, it should be easier and more effective to raise people’s self-compassion than to raise their self-esteem (Neff, 2003a).

The present study constructed two moderated mediation models (see Fig. 1) to examine hopelessness as a mediator in the relationships between cyberbullying victimization and symptoms of depression and anxiety, and whether the direct effects of cyberbullying victimization on depression/anxiety and the mediation effects of hopelessness were moderated by self-compassion. It was hypothesized that hopelessness would mediate the relationships between cyberbullying victimization and symptoms of depression and anxiety. The direct effects of cyberbullying
victimization on depression and anxiety, and the mediation effects of hopelessness would be moderated by self-compassion, with these effects being stronger for adolescents with lower self-compassion.

![Diagram](attachment:diagram.png)

**Fig. 1.** Hypothesized conceptual models.

2. Methods

2.1. Participants and procedure

The present study was approved by the Institutional Review Board of the authors’ university. Convenient sampling method was used to recruit the participants. We selected one ordinary junior high school in Wuhan (a city in central China) as the targeted school. After obtaining the informed consent from the school and all students involved, a total of 489 adolescents (43.6% girls) participated in this research in the psychological health education course. The research was conducted by the trained graduate students majoring in psychology. Participants ranged in age from 11 to 15 years ($M = 12.67, SD = .75$). Before starting the survey, participants were informed that they were free to refuse or discontinue participation at any time without penalty. Researchers clearly stated and emphasized the fact that any information the participants provided would not be revealed to anyone. Last, participants completed the paper-pencil questionnaire written in Chinese during
one class hour, and no one refused or discontinued to participate.

2.2. Measures

2.2.1. Cyberbullying victimization

Participants completed a Chinese version (Zhou et al., 2013) of the cyberbullying victimization subscale of the Cyberbullying Inventory (CBI; Erdur-Baker & KavŞut, 2007). Eighteen activities of cyberbullying victimization are depicted in this subscale. Example activities include “Someone spread rumors about me online” and “Someone sent anonymous text messages to threaten or intimidate me”. Respondents were asked to indicate the number of times that they had engaged in specific cyberbullying victimization activities in the past year on a 4-point scale (1 = never, 4 = more than 5 times). This subscale has shown adequate reliability and validity among Chinese adolescents (Fan, Chu, Zhang, & Zhou, 2016; Zhou et al., 2013). Cronbach’s alpha for the cyberbullying victimization subscale in the present study was .82.

2.2.2. Hopelessness

Hopelessness was assessed using the Hopelessness Scale for Children (HSC; Kazdin, Rodgers, & Colbus, 1986). For this measure with a two-factor structure, adolescents answered 17 true or false questions to reflect their negative expectancies toward future. The first factor comprised the negatively worded items of the scale indicating negative expectations about the future. The second factor comprised the positively worded items indicating some hope for change in the more distant future. Example items include “I don’t think I’ll get what I really want” and “When I grow up, I think I will be happier than I am now”. The mean score was calculated for each participant, with
higher scores indicating greater hopelessness. The HSC has demonstrated adequate validity and internal consistency among children and adolescents (Kazdin et al., 1986; Spirito, Williams, Stark, & Hart, 1988). The Chinese version of HSC was translated from the original, back-translated, and adjusted for cultural adaptation by two PhD students in psychology. Cronbach’s alpha for this scale in the present study was .70.

2.2.3. Self-compassion

The Self-compassion Scale (SCS; Neff, 2003b) was used to assess self-compassion. Participants answered 26 items on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Example items include “I’m kind to myself when I’m experiencing suffering” and “When things are going badly for me, I see the difficulties as part of life that everyone goes through”. The mean score was calculated for each participant, with higher scores indicating higher levels of self-compassion. The Chinese version of SCS was translated and revised by Chen, Yan, and Zhou (2011), with adequate reliability and validity under Chinese background. Cronbach’s alpha for this scale in the present study was .82.

2.2.4. Depression

Depression was measured by the Chinese version (Wang, Wang, & Ma, 1999) of Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Participants rated 20 depressive symptoms on a 4-point scale (1 = never, 4 = always) to which extent he or she has experienced them during the last week. Example symptoms include “I had trouble keeping my mind on what I was doing” and “I thought my life had been a failure”. The mean score was calculated for each
participant, with higher scores indicating severer depressive symptoms. Cronbach’s alpha for this scale in the present study was .85.

2.2.5. Anxiety

Anxiety was measured by the Chinese version (Wang et al., 1999) of Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). Participants rated 21 anxiety symptoms on a 4-point scale (1 = not at all, 4 = I could barely stand it) to which extent he or she has experienced them during the last week. Example symptoms include “Hands trembling” and “Fear of losing control”. The mean score was calculated for each participant, with higher scores indicating severer anxiety symptoms. Cronbach’s alpha for this scale in the present study was .90.

2.3. Statistical analyses

All the statistical analyses were conducted with SPSS 19.0 software package. Two-way ANOVA was employed to examine the gender and age differences in the research variables. Pearson’s correlation analyses were adopted to explore the potential relationships among cyberbullying victimization, hopelessness, self-compassion, depression, and anxiety. We tested the hypothesized conceptual models (moderated mediation models) using the PROCESS macro for SPSS (Model 8) developed by Hayes (2013). This approach has been extensively used in many studies to test complex models including moderated mediation model (e.g., Chung, Allen, & Dennis, 2013; Liu et al., 2017). Bias-corrected bootstrap confidence intervals (CIs) derived from 5,000 bootstrap resamples are estimated to test for the significance of conditional direct and indirect effects. The effects are considered significant if the CI values do not include zero.
3. Results

3.1. Descriptive and correlational analyses

In the current sample, 74.6% (n = 365) of the participants reported that they had been cyberbullied by someone at least once in the past year. These adolescents consisted of 213 boys (77.2%) and 152 girls (71.4%); 172 students at years 11-12 (74.1%), 138 students at year 13 (74.2%), and 55 students at years 14-15 (77.5%). To detect the gender and age differences in the research variables, we used the mean score of each of the variables to perform a 2 (Gender: male and female) × 3 (Age: 11-12, 13, and 14-15 years) between-participants ANOVA. Analyses only revealed main effects of age on cyberbullying victimization \( F(2, 483) = 4.37, p < .05 \), depression \( F(2, 483) = 7.21, p < .001 \), and self-compassion \( F(2, 483) = 8.26, p < .001 \). Post hoc tests showed that older students tended to report higher levels of cyberbullying victimization and depression, as well as lower levels of self-compassion.

All research variables were significantly correlated in the predicted directions. As shown in Table 1, cyberbullying victimization was positively associated with hopelessness, depression, and anxiety. Hopelessness was positively associated with depression and anxiety. Self-compassion was negatively associated with cyberbullying victimization, hopelessness, depression, and anxiety.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cyberbullying victimization</td>
<td>1.19</td>
<td>.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Hopelessness</td>
<td>0.27</td>
<td>.18</td>
<td>.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Self-compassion</td>
<td>3.30</td>
<td>.51</td>
<td>-.20</td>
<td>-.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Depression</td>
<td>1.64</td>
<td>.43</td>
<td>.40</td>
<td>.48</td>
<td>-.51</td>
<td></td>
</tr>
<tr>
<td>5. Anxiety</td>
<td>1.36</td>
<td>.44</td>
<td>.42</td>
<td>.48</td>
<td>-.40</td>
<td>.54</td>
</tr>
</tbody>
</table>

Note. All the correlation coefficients were significant (p < .001).
3.2. Testing for hypothesized conceptual Model 1

Two regression models were used to test for the first moderated mediation model (see Fig. 1). Participants’ gender and age were controlled in regression equations. As presented in Table 2, cyberbullying victimization positively predicted hopelessness ($\beta = .18, p < .001$), and hopelessness positively predicted depression ($\beta = .24, p < .001$). The direct relationship between cyberbullying victimization and depression was also significant ($\beta = .20, p < .001$), which indicated that hopelessness partially mediated the relation between cyberbullying victimization and depression. Besides, the interaction term of cyberbullying victimization and self-compassion had significant effects on hopelessness ($\beta = -.15, p < .001$) and depression ($\beta = -.16, p < .001$). These results suggested that self-compassion moderated the associations between cyberbullying victimization and hopelessness as well as depression. Simple slope tests showed that for low self-compassionate individuals (one SD below the mean), cyberbullying victimization was associated with hopelessness ($\beta_{\text{simple}} = .70, p < .001$) and depression ($\beta_{\text{simple}} = .36, p < .05$). However, for high self-compassionate individuals (one SD above the mean), the effects of cyberbullying victimization on hopelessness and depression were weak ($\beta_{\text{simple}} = .31, p < .01$) and non-significant ($\beta_{\text{simple}} = -.10, p = .40$) (see Fig. 2 and Fig. 3). Testing the conditional effects (at values of the moderator: $M - 1 \text{SD}$, $M$, and $M + 1 \text{SD}$), when the values of self-compassion were -1 and 0, both the conditional direct and indirect effects were significantly different from zero. Namely, the positive direct effect of cyberbullying victimization on depression and the positive indirect effect of cyberbullying victimization on depression through hopelessness were revealed when self-compassion was moderate to low, but not when it was high.

Table 2. Regressions testing hopelessness as a mediator and self-compassion as a moderator in the relationship
between cyberbullying victimization and depression.

### Regression Models

<table>
<thead>
<tr>
<th>Regression Models</th>
<th>$\beta$</th>
<th>$SE$</th>
<th>$t$ value</th>
<th>LLCI</th>
<th>ULCI</th>
<th>$R^2$</th>
<th>$F$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.26</td>
<td>33.38***</td>
</tr>
<tr>
<td>Outcome: Hopelessness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictors: Gender</td>
<td>.10</td>
<td>.08</td>
<td>1.29</td>
<td>-.054</td>
<td>.259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.07</td>
<td>.05</td>
<td>-1.35</td>
<td>-.176</td>
<td>.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV</td>
<td>.18</td>
<td>.04</td>
<td>4.08***</td>
<td>.091</td>
<td>.261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>-.41</td>
<td>.04</td>
<td>-10.14***</td>
<td>-.492</td>
<td>-.332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV $\times$ SCS</td>
<td>-.15</td>
<td>.05</td>
<td>-3.19**</td>
<td>-.239</td>
<td>-.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.42</td>
<td>59.27***</td>
</tr>
<tr>
<td>Outcome: Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictors: Gender</td>
<td>-.03</td>
<td>.07</td>
<td>-0.42</td>
<td>-.168</td>
<td>.108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
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<td>.05</td>
<td>1.79</td>
<td>-.008</td>
<td>.176</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopelessness</td>
<td>.24</td>
<td>.04</td>
<td>5.89***</td>
<td>.157</td>
<td>.315</td>
<td></td>
<td></td>
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<tr>
<td>CV</td>
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<td>.04</td>
<td>5.12***</td>
<td>.122</td>
<td>.274</td>
<td></td>
<td></td>
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<tr>
<td>SCS</td>
<td>-.35</td>
<td>.04</td>
<td>-8.98***</td>
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<td>-.277</td>
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<tr>
<td>CV $\times$ SCS</td>
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<td>.04</td>
<td>-3.96***</td>
<td>-.245</td>
<td>-.082</td>
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### Conditional direct effect

<table>
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<tr>
<th>SCS values</th>
<th>Effect</th>
<th>$SE$</th>
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<th>ULCI</th>
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<tbody>
<tr>
<td>-1 ($M-1,SD$)</td>
<td>.36</td>
<td>.05</td>
<td>.270</td>
<td>.453</td>
</tr>
<tr>
<td>0 ($M$)</td>
<td>.20</td>
<td>.04</td>
<td>.122</td>
<td>.274</td>
</tr>
<tr>
<td>1 ($M+1,SD$)</td>
<td>.03</td>
<td>.07</td>
<td>-.093</td>
<td>.163</td>
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</table>

### Conditional indirect effect

<table>
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<th>Effect</th>
<th>Boot $SE$</th>
<th>Boot LLCI</th>
<th>Boot ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 ($M-1,SD$)</td>
<td>.08</td>
<td>.02</td>
<td>.041</td>
<td>.128</td>
</tr>
<tr>
<td>0 ($M$)</td>
<td>.04</td>
<td>.02</td>
<td>.019</td>
<td>.080</td>
</tr>
<tr>
<td>1 ($M+1,SD$)</td>
<td>.01</td>
<td>.02</td>
<td>-.034</td>
<td>.046</td>
</tr>
</tbody>
</table>

**Note.** $N = 489$. Gender was dummy coded (male = 1; female = 0). CV = Cyberbullying victimization; SCS = Self-compassion Scale; LL = lower limit, CI = confidence interval, UL = upper limit. The research variables (excluding gender and age) in regression models were standardized.

**$p < .01$.**

**$***p < .001.$**
Fig. 2. Self-compassion (SCS) moderated the relationship between cyberbullying victimization and hopelessness.

Fig. 3. Self-compassion (SCS) moderated the relationship between cyberbullying victimization and depression.

3.3. Testing for hypothesized conceptual Model 2

The same statistical procedure was performed to test for the second moderated mediation model (see Fig. 1). As presented in Table 3, cyberbullying victimization positively predicted hopelessness ($\beta = .18$, $p < .001$), and hopelessness positively predicted anxiety ($\beta = .27$, $p < .001$).
The direct relationship between cyberbullying victimization and anxiety was also significant ($\beta = .22, p < .001$), which indicated that hopelessness partially mediated the relation between cyberbullying victimization and anxiety. Besides, the interaction term of cyberbullying victimization and self-compassion had significant effects on hopelessness ($\beta = -.15, p < .001$) and anxiety ($\beta = -.22, p < .001$). These results suggested that self-compassion moderated the associations between cyberbullying victimization and hopelessness as well as anxiety. Simple slope tests showed that for low self-compassionate individuals, cyberbullying victimization was associated with hopelessness ($\beta_{\text{simple}} = .70, p < .001$) and anxiety ($\beta_{\text{simple}} = .40, p < .01$). However, for high self-compassionate individuals, the effects of cyberbullying victimization on hopelessness and anxiety were weak ($\beta_{\text{simple}} = .31, p < .01$) and non-significant ($\beta_{\text{simple}} = .12, p = .33$) (see Fig. 2 and Fig. 4).

Testing the conditional effects, when the values of self-compassion were -1 and 0, both the conditional direct and indirect effects were significantly different from zero. Namely, the positive direct effect of cyberbullying victimization on anxiety and the positive indirect effect of cyberbullying victimization on anxiety through hopelessness were revealed when self-compassion was moderate to low, but not when it was high.

**Table 3.** Regressions testing hopelessness as a mediator and self-compassion as a moderator in the relationship between cyberbullying victimization and anxiety.

<table>
<thead>
<tr>
<th>Regression Models</th>
<th>$\beta$</th>
<th>$SE$</th>
<th>$t$ value</th>
<th>LLCI</th>
<th>ULCI</th>
<th>$R^2$</th>
<th>$F$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>.26</strong></td>
<td><strong>33.38</strong>*</td>
</tr>
<tr>
<td>Outcome: Hopelessness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictors: Gender</td>
<td>.10</td>
<td>.08</td>
<td>1.29</td>
<td>-.054</td>
<td>.259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.07</td>
<td>.05</td>
<td>-1.35</td>
<td>-.176</td>
<td>.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV</td>
<td>.18</td>
<td>.04</td>
<td>4.08***</td>
<td>.091</td>
<td>.261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>-.41</td>
<td>.04</td>
<td>-10.14***</td>
<td>-.492</td>
<td>-.332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV $\times$ SCS</td>
<td>-.15</td>
<td>.05</td>
<td>-3.19**</td>
<td>-.239</td>
<td>-.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>.39</strong></td>
<td><strong>51.99</strong>*</td>
</tr>
<tr>
<td>Outcome: Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictors: Gender</td>
<td>-.14</td>
<td>.07</td>
<td>-1.92</td>
<td>-.280</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Effect</td>
<td>SE</td>
<td>LLCI</td>
<td>ULCI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
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<td>------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV × SCS</td>
<td>-0.22</td>
<td>0.04</td>
<td>-0.128</td>
<td>0.052</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.16</td>
<td>0.03</td>
<td>-0.050</td>
<td>0.056</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 489. Gender was dummy coded (male = 1; female = 0). CV = Cyberbullying victimization; SCS = Self-compassion Scale; LL = lower limit, CI = confidence interval, UL = upper limit. The research variables (excluding gender and age) in regression models were standardized.

**p < .01.
***p < .001.

Fig. 4. Self-compassion (SCS) moderated the relationship between cyberbullying victimization and anxiety.

4. Discussion

The present study examined hopelessness and self-compassion as two potential mechanisms
linking cyberbullying victimization to depressive and anxiety symptoms. Results indicated that hopelessness partially mediated the relationships between cyberbullying victimization and depression as well as anxiety. The direct effects of cyberbullying victimization on depression and anxiety, and the mediation effects of hopelessness were moderated by self-compassion. To be specific, these effects were much stronger for adolescents with lower self-compassion. These findings extend the previous literature by explaining how, when, and when of how cyberbullying victimization is related to depression and anxiety.

Consistent with the psychosocial model of depression proposed by Brown and Harris (1978), our results indicate that the associations between cyberbullying victimization and its negative impacts (i.e., depression and anxiety) are mediated by hopelessness and moderated by self-compassion. These findings are in line with the prior studies demonstrating self-esteem as moderator and hopelessness as a mediator in the stress-depression relationship (Abela, 2002; Metalsky et al., 1993; Whisman & Kwon, 1993). The present study, however, can largely extend the theory and previous research by examining self-compassion (a more positive emotional stance toward oneself compared with self-esteem) as a buffer against the negative effects of a specific type of stressors (i.e., cyberbullying victimization). In this sense, low self-compassion may be viewed as a more salient diathesis in the Brown and Harris’s (1978) theory, as high self-esteem is associated with some negative development characteristics, such as narcissism and self-centeredness (Baumeister, Smart, & Boden, 1996; Neff & Vonk, 2009). Also, the present study can enrich the theory and previous research by focusing on cyberbullying victimization, a specific online stressor that appears among adolescents in recent years (rather than general life events or daily hassles), and investigating both depression and anxiety as the outcomes. Although the results provide support for the extensions
of the psychosocial model of depression, the evidence is limited due to the cross-sectional nature of this study. Thus, future research should test for this theoretical problem further.

The hypothesis that hopelessness mediates the relationships between cyberbullying victimization and depression as well as anxiety is supported. This finding is novel and can provide certain evidence for the developmental extension of the hopelessness theory (Rose & Abramson, 1992). Specifically, cyberbullying victimization, as a kind of repeated, chronic, and uncontrollable stressor, can evoke victims’ strong negative emotions (e.g., fear, helplessness, and feeling vulnerable), diminish their self-worth, and induce their self-blaming attributions (Bauman, 2010). With repeated occurrences of cyberbullying victimization incident (that may more readily “snowball” out of the control of the bully and victim), individuals may shift initially hopeful attributions to hopeless attributions, which lead to greater hopelessness, and in turn increase the risk for depression and anxiety. This study further enriches Rose and Abramson’s (1992) conceptual model by revealing anxiety as a possible outcome of stressors and hopelessness. Our finding is also similar to the previous studies demonstrating hopelessness as a mediator between emotional abuse and depression or social anxiety (Courtney et al., 2008; Hamilton et al., 2013). However, the present study largely extends these previous findings by examining adolescents’ victimization in the virtual environment.

One additional point needs to be mentioned. Although the mediation effect of hopelessness is significant, this effect is not strong compared with the direct effect of cyberbullying victimization on depression/anxiety. A possible explanation may be that there are short-term and long-term effects of cyberbullying victimization on individuals’ negative emotions. Specifically, in the short term, after being cyberbullied, adolescents may easily feel depressive and anxious as an immediate
response to this negative event. In the long term, adolescents may tend to develop the feelings of hopelessness due to the continued and chronic cyberbullying victimization experiences, which in turn leads to their depressive and anxiety symptoms. Future research can use experimental and long-term prospective design to test for this hypothesis. Besides, this result may imply that there are some other factors playing mediating roles in the association between cyberbullying victimization and depression/anxiety, and future research may examine more mediators to better understand the undesirable consequences of cyberbullying victimization. The results indicate that both cyberbullying victimization and hopelessness are vulnerability factors for depression and anxiety, and warrant greater attention in adolescents. Programs aimed at preventing cyberbullying perpetration or victimization, such as the ViSC Social Competence Program (Gradinger, Yanagida, Strohmeier, & Spiel, 2016), should be highlighted. Furthermore, interventions designed to reduce the impacts of cyberbullying victimization should focus on reducing levels of negative cognition including hopelessness. Appropriate support and training for coping strategies, particular by targeting hopelessness in adolescents can be provided to reduce the risk of being depressive or anxious.

The present study is the first to examine self-compassion as a potential moderator between cyberbullying victimization and psychological health. The results suggest that self-compassion buffers the associations between cyberbullying victimization and depression, anxiety, and hopelessness. Specifically, adolescents with lower self-compassion are more likely to experience feelings of depression, anxiety, and hopelessness after encountering cyberbullying victimization. These results support the organism-environment interaction model (Lerner et al., 2006), which proposes that the dynamics of individual and context interactions influence the individuals'
psychological and social adaptation. Our findings are also similar to some previous studies revealing self-compassion as a moderator between stressors and psychological difficulties (Jiang et al., 2016; Keng & Liew, 2017; Kyeong, 2013; Leary et al., 2007). This research, however, further extends these previous findings by focusing on a specific domain of interpersonal stressors (i.e., cyberbullying victimization), instead of general life stressors.

The moderating effects of self-compassion can be explained in several ways. First, self-compassionate people usually demonstrate more emotional resilience confronting negative events (e.g., cyberbullying victimization) (Neff & Vonk, 2009). For example, Leary and colleagues (2007) found that self-compassion alleviated individuals’ negative emotional reactions when imagining distressing social events, receiving ambivalent interpersonal feedback, and remembering past negative life events. Second, self-compassion involves a positive self-attitude and greater self-concept accuracy (Neff & Vonk, 2009), which can protect adolescents from being consumed by negative self-judgment and from suffering the negative effects of stressors (Bluth et al., 2016). After being cyberbullied, self-compassionate adolescents are inclined to be kind to themselves and be understandable to their victimization experiences, instead of harshly criticizing or blaming themselves. Besides, self-compassion can be regarded as an adaptive coping resource (e.g., positive cognitive restructuring). Adolescents high in self-compassion tend to hold their victimization experiences in mindful balance and more successfully deal with painful thoughts and feelings resulting from cyberbullying victimization, rather than avoiding these experiences or exaggerating the extent of their personal suffering.

Our study suggests that developing ways to strengthen self-compassion in adolescents is advantageous in alleviating the detrimental effects of cyberbullying victimization (i.e., depression,
anxiety, and hopelessness). There are some intervention programs that could enhance self-compassion including compassionate mind training, imagery work, the gestalt two-chair technique, mindfulness based stress reduction, dialectical behavior therapy, and acceptance and commitment therapy (Barnard & Curry, 2011). These programs may raise people’s self-compassion by producing self-soothing and self-reassuring thoughts, by extending empathy to self and challenging self-judgmental beliefs, by developing skills to modulate emotions and behaviors, and by cultivating mindfulness and other facets of self-compassion. For example, Neff and her colleagues (2007) conducted a two-chair technique with 40 students to raise their self-compassion by extending empathy to self and challenging their self-judgmental, maladaptive beliefs. Students were asked to think about a situation in which they were self-critical, and then to move between two chairs acting and speaking like the judgmental self in one chair and the self experiencing the judgment in the other. The intervention process would terminate provided the students resolved the conflict or it seemed apparent that the resolution was unlikely. The results indicate that the gestalt two-chair technique may raise self-compassion and reduce anxiety, depression, rumination, and thought-suppression. Further research is still needed to examine the technique’s specific impact on self-compassion, and how it compares to other active treatments.

The present study has several limitations. First, this study used a cross-sectional research design. Readers should realize that the causal relationships cannot be inferred. Future longitudinal or experimental studies can further determine the direction of the effects. Second, this study relied on a convenience sample of Chinese early adolescents, and the participants were recruited just from one middle school. This may limit the generalizability of the research findings. Third, the data were collected only through self-report measures. Self-reports may be subject to increased biases (e.g.,
socially desirable response) and inflated associations between antecedent and outcome variables (Podsakoff, MacKenzie, & Podsakoff, 2012). Reports from multiple informants (e.g., parents, teachers, and peers) should be considered in the future research.

To conclude, the present study extends our knowledge about the mechanisms linking cyberbullying victimization to depressive and anxiety symptoms in adolescence. We specifically examined hopelessness as a mediator and self-compassion as a moderator to account for how, when, and when of how cyberbullying victimization was associated with depression and anxiety. Results indicated that hopelessness partially mediated the relationships between cyberbullying victimization and depression as well as anxiety. The direct effects of cyberbullying victimization on depression and anxiety, and the mediation effects of hopelessness were moderated by self-compassion. Specifically, these effects were much stronger for adolescents with lower self-compassion. Our findings highlight the importance of centering on hopelessness and self-compassion when formulating interventions aimed at reducing the negative impacts of cyberbullying victimization.

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Cyberbullying victimization (CV) was positively related to depression/anxiety. Hopelessness mediated the relations between CV and depression/anxiety. Self-compassion moderated the direct relations between CV and depression/anxiety. Self-compassion moderated the mediating effects of hopelessness.